

What is claimed is:

1. A solid composition comprising a dry mixture of at least one carbohydrate and an amino acid or amino acid salt, wherein the ratio of the total carbohydrate to amino acid is about 1.5:1 w/w to about 20:1 w/w.
- 5
2. The composition of claim 1, wherein the amino acid has a solubility of less than about 5 grams per 100 milliliters of water at 22-25°C.
- 10 3. The composition of claim 1, wherein the amino acid is glutamine.
4. The composition of claim 3, wherein the glutamine is L-glutamine.
5. The composition of claim 1, wherein the carbohydrate comprises a monosaccharide, a disaccharide, a polysaccharide, a sugar alcohol or a combination thereof.
- 15
6. The composition of claim 5, wherein the disaccharide is sucrose.
- 20 7. The composition of claim 5, wherein the sugar alcohol comprises sorbitol, mannitol or xylitol.
8. The composition of claim 1, wherein the concentration of glutamine is about 5-50% w/w and the concentration of total carbohydrate is about 15-50% w/w.
- 25
9. A solid composition comprising a dry mixture of at least one carbohydrate and glutamine, wherein the concentration of glutamine is about 5-15% w/w and the concentration of carbohydrate is about 30-50% w/w.

10. The composition of claim 9, wherein the glutamine is L-glutamine.
11. The composition of claim 9, wherein the carbohydrate comprises a monosaccharide, a disaccharide, a polysaccharide, a sugar alcohol or a combination thereof.
5
12. The composition of claim 11, wherein the disaccharide is sucrose.
13. The composition of claim 9 further comprising glycerin.
10
14. The composition of claim 13 further comprising xanthan gum, carrageenan, or a combination thereof.
15. The composition of claim 14 further comprising sodium phosphate monobasic, artificial flavor, methylparaben, potassium sorbate powder, simethicone emulsion, or a combination thereof.
15
16. A solid composition consisting essentially of a dry mixture of about 5-15% w/w glutamine;
20 about 30-50 w/w% carbohydrate;
an effective amount of buffer or buffering agent; and
about 1-5% w/w modified cellulose.
17. The composition of claim 16, wherein the glutamine is L-glutamine.
25
18. The composition of claim 16, wherein the carbohydrate comprises a disaccharide and a sugar alcohol or polyol.
19. The composition of claim 18, wherein the disaccharide is sucrose.

20. The composition of claim 18, wherein the sugar alcohol is sorbitol.
21. The composition of claim 16, wherein the buffering agent is anhydrous monobasic sodium phosphate.
- 5
22. The composition of claim 16 further comprising glycerin.
23. The composition of claim 22 further comprising a stabilizer, emulsifying agent, preservative, defoamant, flavoring, or a combination thereof.
- 10
24. The composition of claim 23, wherein the emulsifying agent comprises xanthan gum, carrageenan, or a combination thereof.
25. The composition of claim 23, wherein the preservative comprises methylparaben, potassium sorbate, or a combination thereof.
- 15
26. The composition of claim 23, wherein the defoamant comprises simethicone.